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The method above described of concentrating a ship's broadside, may be employed with at least equal, and perhaps superior efficacy, against any fixed object ashore, such as a fort or battery.

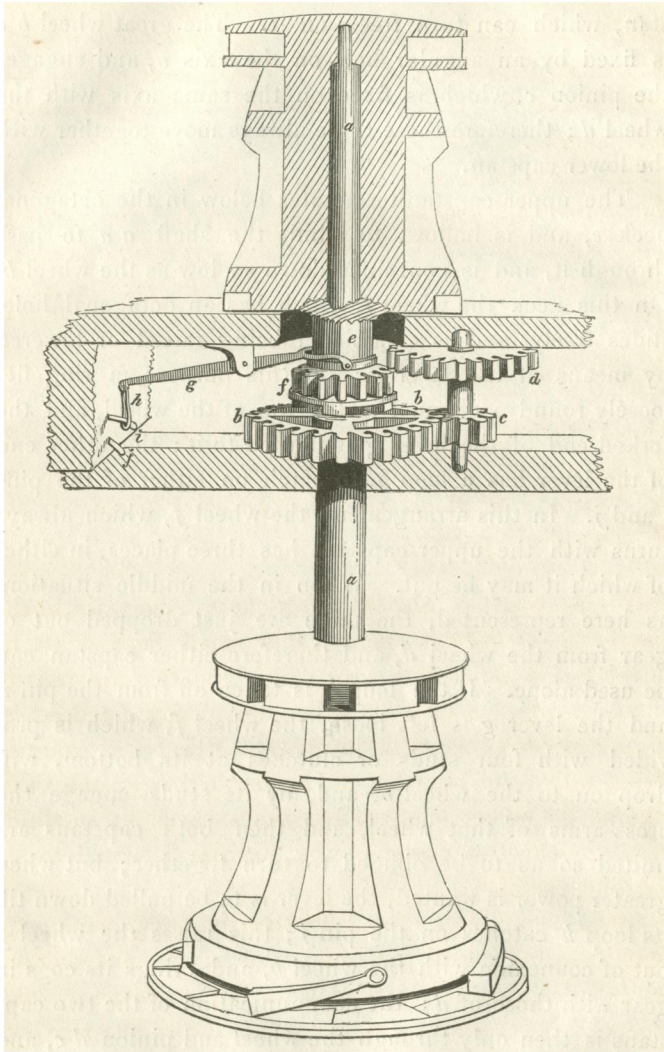
No. II.

COMPOUND CAPSTAN.

The LARGE SILVER MEDAL was presented to Mr. T. MEDLEN, 23, Gill Street, Limehouse, for a Compound Capstan; a Model of which has been placed in the Society's Repository.

THE great merit of Mr. Medlen's capstan consists in the simplicity of its construction, its small liability to be injured, and the facility with which the two capstans of which it consists may be either completely detached, or combined so as to work in concert; the lower capstan, round which the rope passes, moving either at the same rate as the upper one, or five times as slow; in which case, the effective power of the machine is equal to six single capstans.

It is beginning to be adopted in the navy, one having been fitted on board the Maidstone frigate, and another on board the Rose sloop of war. It is, however, considered to be especially serviceable on board sheer-hulks; and accordingly one at Portsmouth is so employed; three also have been sent to Gibraltar, five to Malta, two to Bermuda, and two to Trincomalee, for dock-yard use at those naval stations.



The annexed figure shews the two capstans, as detached from each other. *a a* the shaft of the lower capstan: it rises through the deck, and into the upper cap-

stan, which can turn freely on it. The great wheel b is fixed by an angular hole on the axis a , and engages the pinion c , which is fixed on the same axis with the wheel d ; therefore these three always move together with the lower capstan.

The upper capstan terminates below in the octagonal neck e , and is hollow, to admit the shaft a to pass through it, and is continued down as low as the wheel b . On this neck the wheel f , which has an octagonal hole, slides freely, and is capable of being raised or lowered by means of the lever g : for this purpose, a ring fits loosely round a channel in the top of the wheel, and the forked end of the lever g is jointed to it; the other end of the lever has a loop h , to catch on either of the pins i and j . In this arrangement, the wheel f , which always turns with the upper capstan, has three places, in either of which it may be put. When in the middle situation, as here represented, the teeth are just dropped out of gear from the wheel d , and therefore either capstan can be used alone. If the loop h is taken off from the pin i , and the lever g is left loose, the wheel f , which is provided with four studs or clutches at its bottom, will drop on to the wheel b , and, by its studs, engage the cross-arms of that wheel, and then both capstans are united so as to be obliged to turn together; but when greater power is wanted, the lever is to be pulled down till its loop h catches on the pin j ; this raises the wheel f out of connexion with the wheel b , and brings its cogs in gear with those of d ; the communication of the two capstans is then only through the wheel and pinion d c , and these are so proportioned as to make the upper capstan go five times round while the lower one goes once, and therefore in power is equivalent to the addition of five capstans to the lower one.